IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	:	HABETHA, et al.
Serial No.	:	10/597,543
Filed	:	July 28, 2006
Art Unit	:	2617
Examiner	:	AJIBADE AKONAI, OLUMIDE
Att. Docket	:	2004P00388WOUS [US040121]
Confirmation No.	:	2516

APPEAL BRIEF
On Appeal from Group Art Unit 2617

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Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed on October 20, 2011 and in response to the final Office Action of July 27, 2011.

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I. REAL PARTY IN INTEREST

The real party in interest of the above-identified application is Koninklijke Philips Electronics N.V., the assignee of record, whose assignment is recorded in the USPTO as of July 28, 2006 on four (4) pages beginning at Reel 018019, Frame 0233.

II. RELATED APPEALS AND INTERFERENCES

Appellants are not aware of any pending appeals, judicial proceedings, or interferences which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

a) Claims 1-33 and 35-37 are pending at the time of filing this Appeal Brief.

b) Claims 1, 3-5, 7, 9, 11, 12, 14, 15, 19, 22, 27, 28, 33, 35, and 37 stand rejected in a final Office Action dated July 27, 2012, and are the subject of this appeal.

c) Claims 2, 6, 8, 10, 13, 16-18, 20, 21, 23-26, 29-32, and 36 are allowable if rewritten in independent form.

d) Claims 1, 35, and 37 are independent.

e) Claim 34 is canceled.

IV. STATUS OF AMENDMENTS

The claims listed in section "VIII. Claims Appendix" of this Appeal Brief correspond to the claims as submitted in Appellants' response filed on April 29, 2011, in response to the non-final Office Action dated February 1, 2011. No claim amendments have been submitted following the response of April 29, 2011, nor are any amendments pending.

V. SUMMARY OF CLAIMED SUBJECT MATTER[1]

The claimed invention, as recited in claim 1, is directed to a method of decentralized medium access control in a communications network including a plurality of devices, (see Appellants' specification at least at Fig. 3B, page 5, lines 23-24 and page 6, line 25-page 7, line 7) comprising: dividing time into a sequence of at least one superframe (page 2, lines 30-31); and a first device of said plurality of devices transmitting in the superframe at a target beacon transmission time (TBTT) (page 4, lines 1-10) a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe (page 17, lines 16-19).

The claimed invention, as recited in claim 35, is directed to a wireless device that reserves a medium in a distributed manner (page 6, lines 28-33), comprising: an antenna for sending and receiving messages over a wireless medium (page 6, lines 26-28); a receiver coupled to the antenna to receive messages transmitted over the wireless medium (page 6, lines 26-28); a transmitter coupled to the antenna to transmit messages over the wireless medium (page 6, line 33-page 7, line 2); a distributed reservation processing module to perform distributed reservation of the medium (page 6, lines 28-29); a processor to divide time into a sequence of at least one superframe (page 2, lines 30-31), each said superframe having at least one beacon period that starts at a target Beacon Period Start Time (BPST) and includes at least one beacon slot, said beacon period being followed in the superframe by a data transmission phase (page 2, lines 7-11), and coupled to: the transmitter and the receiver to send and receive, respectively, beacon frames during said beacon period and data during said data transmission phase of the superframe, the distributed reservation processing

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[1] It should be explicitly noted that it is not Appellants' intention that the currently claimed or described embodiments be limited to operation within the illustrative embodiments described below beyond what is required by the claim language. Further description of the illustrative embodiments are provided indicating portions of the claims which cover the illustrative embodiments merely for compliance with requirements of this appeal without intending to read any further interpreted limitations into the claims as presented.

module to manage beacon slot occupancy and data transmission phase reservations (page 6, lines 28-29); format a beacon frame for transmission in the at least one beacon slot, such that the beacon frame includes a reservation of the medium by the device for data transmission during the data transmission phase (page 6, line 33-page 7, line 2 and page 17, lines 16-19), and format a beacon frame for transmission in the at least one beacon slot that responds to reservations received over the medium (page 21, lines 17-21).

The claimed invention, as recited in claim 37, is directed to a wireless device for distributed reservation of a medium, comprising: an antenna for sending and receiving messages over a wireless medium (page 6, lines 26-28); a receiver coupled to the antenna to receive medium reservation messages transmitted over the wireless medium (page 6, lines 26-28); a transmitter operatively coupled to the antenna to transmit medium reservation messages over the wireless medium (page 6, line 33-page 7, line 2); a distributed reservation processing module to perform distributed reservation of the medium (page 6, lines 28-29); and a processor coupled to the distributed reservation processing module, a distributed reservation protocol (DRP) bitmap, and a memory including a DRP reservation table (page 7, lines 6-7), said processor using the distributed reservation processing module (page 6, lines 29-33), the DRP bitmap, and the DRP reservation table to divide time into a sequence of at least one superframe (page 2, lines 30-31 and page 7, lines 3-6), and transmitting in the superframe at a target beacon transmission time (TBTT) (page 4, lines 1-10) a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe (page 17, lines 16-19).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1, 3-5, 7, 9, 11, 12, 14, 15, 19, 27, 28, and 33 are properly rejected under 35 U.S.C. §102(e) as anticipated by Kondylis et al. 6,665,311 ("Kondylis").

B. Whether claims 22, 35, and 37 are properly rejected as noted on box 6 of the Office Action Summary page.

VII. ARGUMENT

Appellants respectfully traverse the rejections in accordance with the detailed arguments set forth below.

A. Claims 1, 3-5, 7, 9, 11, 12, 14, 15, 19, 27, 28, and 33 are not properly rejected under 35 U.S.C. §102(e) as being anticipated by Kondylis.

1. Claim 1

Independent claim 1 requires:

> *A method of decentralized medium access control in a communications network including a plurality of devices, comprising:*
> *dividing time into a sequence of at least one superframe; and*
> *a first device of said plurality of devices transmitting in the superframe at a target beacon transmission time (TBTT) **a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe**.* [Emphasis added].

On page 4 of the final Office Action, the Examiner asserts that Kondylis at figures 9 and 10; column 16, line 62-column 7, line 5; column 17, lines 21-29 and 61-66 discloses a beacon frame that includes a reservation for a planned transmission by a sender device. Appellants respectfully traverse this rejection.

Kondylis relates to adaptive bandwidth reservation in wireless ad-hoc networks in which a frame is allegedly divided into a signaling subframe and a data subframe (Kondylis, figures 3, 9, 10 and column 16, line 62-column 17, line 5). At figure 9 and column 17, lines 21-65, Kondylis appears to disclose that the signaling subframe includes the reservation slots.

The Examiner appears to consider that Kondylis' signaling subframe, which apparently includes the reservation information, is equivalent to a beacon frame that includes a reservation, as defined in Appellants' claim 1.

Appellants respectfully assert that Kondylis' signaling subframe is distinct from a beacon frame. There is no indication of a beacon in Kondylis' signaling subframe, therefore Appellants respectfully assert that a beacon frame is not the same as, nor equivalent to, the signaling subframe of Kondylis.

Furthermore, Kondylis apparently discloses that the data subframe, but not the signaling subframe, receives the beacon information. See for example Kondylis, figure 3 and column 7, lines 49-56, where the frame 300 is divided into a signaling subsection 302 and a data subsection 304. The data subsection 304 includes data slots 314. Each of the data slots 314 includes a receive beacon minislot 316. See also Kondylis, claim 10, which recites in part: "the TDMA frame is divided into a signaling portion and a data portion, . . . the data portion comprising data slots, with each data slot including a receive beacon portion. . . ." Therefore, Kondylis' signaling subframe is not equivalent to a beacon frame. Accordingly, Kondylis does not disclose the feature of a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe, as required in claim 1.

In summary, Kondylis appears to disclose that the signaling subframe includes reservation and the data subframe includes the beacon information. However, this is distinct from claim 1, which requires a beacon frame that includes a reservation because the signaling subframe of Kondylis is not a beacon frame.

In view of the above, Appellants respectfully submit that Kondylis does not disclose every feature of claim 1, and thus claim 1 is not anticipated by Kondylis. Therefore, it is respectfully requested that the Board reverse the rejection of claim 1 under 35 U.S.C. §102(e).

2. Claims 3-5, 7, 9, 11, 12, 14, 15, 19, 27, 28, and 33

Each of claims 3-5, 7, 9, 11, 12, 14, 15, 19, 27, 28, and 33 ultimately depends from claim 1. Furthermore, each dependent claim includes additional distinguishing features. For each dependent claim, Appellants apply the above arguments from claim 1. Thus, Appellants respectfully submit that the rejections of claims 3-5, 7, 9, 11, 12, 14, 15, 19, 27, 28, and 33 under 35 U.S.C. 102(e), are unfounded and should be reversed.

B. Claims 22, 35, and 37 are not properly rejected as noted on box 6 of the Office Action Summary page.

1. Claims 22, 35, and 37

In the Office Action dated June 17, 2010, independent claims 35 and 37 were allowed and dependent claim 22 was allowable if rewritten in independent form. However, in the Office Action dated February 1, 2011, claims 22, 35, and 37 were rejected under 35 USC 112, second paragraph because of insufficient antecedent basis of certain features as recited in the respective claims.

In Appellants' response dated April 29, 2011, claims 22, 35, and 37 were amended to sufficiently address the antecedent basis issues in the respective claims.

However, in the final Office Action dated July 27, 2011, claims 22, 35, and 37 are rejected as noted on box 6 of the Office Action Summary page.

Appellants respectfully submit that the antecedent basis issues of claims 22, 35, and 37 have been sufficiently addressed, and therefore the rejections of claims 22, 35, and 37 are unfounded and should be reversed.

CONCLUSION

In light of the above, Appellants respectfully submit that the rejections of claims 1, 3-5, 7, 9, 11, 12, 14, 15, 19, 22, 27, 28, 33, 35, and 37 are in error, legally and factually, and must be reversed.

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VIII. CLAIMS APPENDIX

1. (previously presented) A method of decentralized medium access control in a communications network including a plurality of devices, comprising:

dividing time into a sequence of at least one superframe; and

a first device of said plurality of devices transmitting in the superframe at a target beacon transmission time (TBTT) a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe.

2. (previously presented) The method of claim 1, wherein:

said first device is the sender of said planned transmission; and

further comprising:

the sender including the reservation in a beacon frame in all superframes during which the reservation is active, and

including, by a receiver device of the planned transmission, said reservation in a beacon frame in all superframes during which the reservation is active.

3. (previously presented) The method of claim 1, further comprising grouping the beacon frame transmitted by each of the plurality of devices into the superframe as at least one beacon period having a starting point at a beacon period start time (BPST) and followed by a data transmission phase.

4. (previously presented) The method of claim 1, further comprising prior to a new or a change of an existing reservation of the sender device, the sender device negotiating with a receiver device of the transmission that is planned during the reservation.

5. (previously presented) The method of claim 4, said negotiation comprising:

an initiator device of the reservation transmitting a distributed reservation protocol (DRP)-Request message comprising at least one reservation description selected from the group consisting of

a starting time, and a duration signalled by means of BPST or TBTT offset,

a reservation period,

a bitmap indicating the reserved times,

at least one time slot number,

a priority,

a channel/hopping indicator, and

a code sequence; and

in response to said DRP-Request, said negotiation further comprises at least one receiver device of the reservation transmitting a distributed reservation protocol (DRP)-Response message that includes an indicator selected from the group consisting of the proposed reservation is accepted, the proposed reservation is rejected with an alternative reservation proposal and the proposed reservation is rejected without an alternative proposal.

6. (previously presented) The method of claim 5, wherein the negotiation further comprises said at least one receiver device further including in said DRP-Response one of the items selected from the group consisting of at least one alternative available time proposal for the reservation and information of at least one alternative available time during the superframe.

7. (previously presented) The method of claim 1, further comprising including in the beacon frame of the first device a starting time of the reservation relative to a reference point selected from the group consisting of the TBTT of the first device, the BPST of the beacon period in which the first device is transmitting the beacon frame, the beginning of the superframe, a time period of the superframe, and a time slot of the superframe.

8. (previously presented) The method of claim 7, wherein:

the starting time of the reservation is given relative to said reference point in the next following superframe, in which said first device will transmit its next beacon frame; and

if proposed by the receiver device, the at least one alternative available time for the reservation is given relative to a reference point in the next following superframe, in which said receiver device will transmit its next beacon frame.

9. (previously presented) The method of claim 1, further comprising maintaining by each device of said plurality of devices a table of all planned reservations received or sent by the device.

10. (previously presented) The method of claim 1, further comprising:

a receiver device of said reservation sending a poll packet to the sender device;

upon receipt of the poll packet, the sender device sending at least one data packet to the receiver device; and

the receiver device acknowledging receipt of at least one data packet by transmitting an acknowledgement (ACK) packet.

11. (previously presented) The method of claim 1, further comprising:

defining said superframe as comprising a plurality of medium access time slots; and

defining a reservation as a starting time slot of said plurality of medium access time slots and a duration as a number of medium access time slots.

12. (previously presented) The method of claim 1, further comprising:

defining said superframe as comprising a plurality of time units; and

defining a reservation as a starting time in time units and a duration as a number of time units.

13. (previously presented) The method of claim 1, further comprising:

defining said superframe as comprising a plurality of medium access time slots; and

defining a reservation as at least one bit in a bitmap comprising at least one bit per each medium access time slot of said plurality of medium access time slots.

14. (previously presented) The method of claim 1, further comprising:

defining said superframe as comprising a plurality of medium access time slots; and

defining a reservation as at least one element selected from the group consisting of a reservation period, a reservation offset, a reservation period offset, a reservation duration, a bitmap of at least one medium access time slot and a type of reservation.

15. (previously presented) The method of claim 1 further comprising defining a reservation as one element selected from the group consisting of:

a plurality of reservations per superframe and valid for a single superframe,

a plurality of reservations per superframe and valid for a plurality of superframes,

single reservation per superframe and valid for a single superframe, and

single reservation per superframe and valid for a plurality of superframes.

16. (previously presented) The method of claim 6, wherein said at least one alternative available time for the reservation is signalled by means of an availability bitmap having at least one bit per time slot to indicate the availability of the time slot.

17. (previously presented) The method of claim 6, wherein said at least one alternative available time for the reservation is signalled by means of at least one element selected from the group consisting of reservation period, reservation offset, reservation period offset, reservation duration, bitmap having at least one bit per time slot to indicate the availability of the time slot.

18. (previously presented) The method of claim 2, further comprising implicitly negotiating the reservation using a first beacon frame of the sender device and a first beacon frame of the receiver device.

19. (previously presented) The method of claim 1, further comprising including availability information in a beacon frame of a device.

20. (previously presented) The method of claim 5, further comprising the initiator device completing the negotiation with a transmission of a DRP Complete message.

21. (previously presented) The method of claim 5, further comprising the sender device terminating the reservation.

22. (previously presented) The method of claim 21, further comprising the sender device terminating a reservation that was initiated by an explicit negotiation, by transmission of a termination command.

23. (previously presented) The method of claim 22, further comprising the receiver device acknowledging the termination command of a unicast stream by transmission of an Immediate Acknowledgment (Imm ACK) frame.

24. (previously presented) The method of claim 22, further comprising sending a termination command by all devices that had previously included the reservation in a beacon frame.

25. (previously presented) The method of claim 2, wherein the beacon frame of the transmitting and including comprises a distributed reservation protocol (DRP) information element (IE) that includes information regarding the position of at least one reservation in the superframe.

26. (previously presented) The method of claim 22, further comprising terminating a reservation by performing one selected from the group consisting of:

removing the reservation information element IE from a current beacon frame and all subsequent beacon frames, and

setting the duration field of the reservation information element IE to zero in a current beacon frame and removing the reservation information element IE from subsequent beacon frames.

27. (previously presented) The method of claim 1, wherein:

the transmitting includes in the beacon frame information of a reservation selected from the group consisting of a starting point and duration, and a bitmap; and

the including is optional.

28. (previously presented) The method of claim 1, further comprising respecting the reservation by all devices receiving a beacon frame that includes the reservation.

29. (previously presented) The method of claim 1, further comprising:

including information on a direction of the planned transmission in the beacon frame; and

only devices within a transmission range of a receiver device respecting the reservation, in case of a unidirectional planned transmission.

30. (previously presented) The method of claim 25, wherein only the receiver device performs the including to include the reservation information element IE in the beacon frame.

31. (previously presented) The method of claim 25, wherein only receiver devices and all 1-hop neighbor devices of receiver devices perform the including to include the reservation information element IE in the beacon frame.

32. (previously presented) The method of claim 25, wherein the sender device, receiver devices, and all 1-hop neighbor devices of the sender device and receiver devices perform the including to include the reservation information element IE in a beacon frame.

33. (previously presented) The method of claim 27, further comprising the receiver device of a reservation performing:

in case of a Soft Reservation, starting an own transmission if the sender device does not use the reserved time;

in case of a Hard Reservation, not accessing the medium if the sender device of the planned transmission does not use the reserved time; and

in case of a Beacon Period Reservation, reserving the time for beacon transmission only.

34. (canceled)

35. (previously presented) A wireless device that reserves a medium in a distributed manner, comprising:

an antenna for sending and receiving messages over a wireless medium;

a receiver coupled to the antenna to receive messages transmitted over the wireless medium;

a transmitter coupled to the antenna to transmit messages over the wireless medium;

a distributed reservation processing module to perform distributed reservation of the medium;

a processor to divide time into a sequence of at least one superframe, each said superframe having at least one beacon period that starts at a target Beacon Period Start Time (BPST) and includes at least one beacon slot, said beacon period being followed in the superframe by a data transmission phase, and coupled to:

the transmitter and the receiver to send and receive, respectively, beacon frames during said beacon period and data during said data transmission phase of the superframe,

the distributed reservation processing module to

manage beacon slot occupancy and data transmission phase reservations;

format a beacon frame for transmission in the at least one beacon slot, such that the beacon frame includes a reservation of the medium by the device for data transmission during the data transmission phase, and

format a beacon frame for transmission in the at least one beacon slot that responds to reservations received over the medium.

36. (previously presented) The wireless device of claim 35, wherein:

each superframe further comprises a plurality of medium access slots allocated between said beacon period and said data transmission phase;

and further comprising

a bitmap operably connected to said processor and arranged to have at least one bit that corresponds to a slot of said plurality of medium access slots, and

a memory operably connected to said processor and arranged to store a reservation table of all planned reservations received or sent by the device; and

said distributed reservation protocol (DRP) processing module further configured to

set and reset said at least one bit of said bitmap in accordance with reservations of the medium for data transmission and beacon slot occupancy, and

store and delete reservations sent and received by the device in the reservation table of the memory.

37. (previously presented) A wireless device for distributed reservation of a medium, comprising:

an antenna for sending and receiving messages over a wireless medium;

a receiver coupled to the antenna to receive medium reservation messages transmitted over the wireless medium;

a transmitter operatively coupled to the antenna to transmit medium reservation messages over the wireless medium;

a distributed reservation processing module to perform distributed reservation of the medium; and

a processor coupled to the distributed reservation processing module, a distributed reservation protocol (DRP) bitmap, and a memory including a DRP reservation table, said processor using the distributed reservation processing module, the DRP bitmap, and the DRP reservation table to divide time into a sequence of at least one superframe, and transmitting in the superframe at a target beacon transmission time (TBTT) a beacon frame that includes a reservation for a planned transmission by a sender device during the superframe.

IX. EVIDENCE APPENDIX

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title nor any other evidence entered by the examiner and relied upon by Appellants in the appeal.

X. RELATED PROCEEDINGS APPENDIX

Appellants are not aware of any appeals or interferences related to the present application.